CLAIMS

1. Monitoring device (9) for an electric appliance (1), in particular for a household appliance, comprising electronic control means, data and/or information storage means, first interface means (7) and preferably second interface means (8), said electronic control means comprising preferably a microcontroller (30) and said data and/or information storage means comprising preferably a non-volatile memory (31), said monitoring device (9) being adapted to be connected to a first communication network (70A, 70B) through said first interface means (7) and to be preferably connected to a second communication network (80) through said second interface means (8), and said first communication network (70A, 70B) being adapted to connect at least one sensing device (93, 94, 95, 96), being capable of measuring at least one value of at least one physical quantity related to said electric appliance (1), to said monitoring device (9), wherein said monitoring device (9) receives said value of at least one physical quantity through said first interface means (7) and in that said electronic control means use said at least one value of at least one physical quantity to obtain at least one piece of information related to said electric appliance (1).

2. Monitoring device (9) according to claim 1, wherein said monitoring device (9) transmits, through said second interface means (8), said at least one piece of information to said second communication network (80) so as to make said at least one piece of information available at a remote location with respect to said monitoring device (9), in order to allow said at least one piece of information to be read and/or stored and/or processed in said remote location.

3. Monitoring device (9) according to claim 1 or 2, wherein said monitoring device (9) also comprises a timing unit (99) adapted to associate said value of at least one physical quantity with the time instant at which said value of at least one physical quantity is detected by said sensing device (93, 94, 95, 96).

4. Monitoring device (9) according to claim 1 or 2 or 3, wherein said monitoring device (9) is adapted to be interposed between said electric appliance (1) and an electric power source (28) and wherein said electric appliance (1) may be powered by said monitoring device (9).

5. Monitoring device (9) according to claim 4, wherein said monitoring device (9) also comprises means (33) for measuring the value of at least one electric quantity, said means (33) being preferably coupled to said electric power source (28).

6. Monitoring device (9) according to claim 5, wherein said electronic control means also use said value of said at least one electric quantity in order to obtain said at least one piece of information related to said electric appliance (1).

7. Monitoring device (9) according to claim 6, wherein said storage means contain one or more predefined values of said at least one physical quantity and/or said at least one electric quantity, and wherein said electronic control means obtain said at least one piece of information by comparing said value of said at least one physical quantity and/or said at least one electric quantity with one or more predefined values.

8. Monitoring device (9) according to claim 3 and any one of claims 5 to 7, wherein said timing unit (99) is also adapted to associate said value of said at least one electric quantity with the time instant at which said value of said at least one electric quantity is detected by said measurement means (33) and with the value of said at least one physical quantity possibly detected by said sensing device (93, 94, 95, 96) at said time instant.

9. Monitoring device (9) according to any one of claims 5 to 8, wherein said data and/or piece of information storage means store a plurality of values of said at least one physical quantity and/or of said at least one electric quantity measured by said at least one sensing device (93, 94, 95, 96) and/or said measurement means (33), respectively, within a predefined time period.

10. Monitoring device (9) according to claim 9, wherein the storage of the last measured value of said at least one physical quantity and/or of said at least one electric quantity causes the deletion of the first measured value within said plurality of values from said data and/or information storage means.

11. Monitoring device (9) according to claim 9 or 10, wherein said electronic control means extrapolate from said plurality of values of said at least one physical quantity a data packet being representative of the evolution of said physical quantity within said predefined time period.

12. Monitoring device (9) according to claim 11, wherein said electronic control means also use said data packet in order to obtain said at least one piece of information related to said electric appliance (1).

13. Monitoring device (9) according to any one of the previous claims, wherein said monitoring device (9) also comprises means for making said at least one piece of information explicit.

14. Monitoring device (9) according to claim 13, wherein said means for making said at

least one piece of information explicit comprise a display and/or a warning lamp and/or a buzzer.

15. Monitoring device (9) according to any one of claims 1 to 14, wherein said first communication network (70A, 70B) employs radiofrequency as a means of communication.

16. Monitoring device (9) according to any one of claims 1 to 14, wherein said first communication network (70A, 70B) employs an electric cable as a means of communication and is preferably based on serial communication.

17. Monitoring device (9) according to any one of claims 1 to 14, wherein said first communication network (70A, 70B) employs an infrared or optical fiber line as a means of communication.

18. Monitoring device (9) according to any one of claims 1 to 17, wherein said second communication network (80) is the electric power supply network of said monitoring device (9).

19. Monitoring device (9) according to any one of claims 1 to 17, wherein said second communication network (80) is a radiofrequency network.

20. Monitoring device (9) according to any one of claims 1 to 17, wherein said second communication network (80) is a fixed or mobile telephone network.

21. Monitoring device (9) according to any one of the previous claims, wherein said at least one physical quantity is chosen among the following: temperature, flow rate, conductivity, weight, absolute humidity, relative humidity, pressure, linear displacement, linear velocity, linear acceleration, angular displacement, angular velocity, angular acceleration, chemical concentration, sound pressure, sound intensity, light intensity, oscillation frequency, oscillation amplitude.

22. Monitoring device (9) according to any one of the previous claims, wherein said at least one electric quantity is chosen among the following: momentary electric current absorbed by said electric appliance (1), line voltage applied to said electric appliance (1), momentary electric power absorbed by said electric appliance (1), electric energy consumption of said electric appliance (1) within a predefined time period, power factor of the load represented by said electric appliance (1), cos-phi of the load represented by said electric appliance (1), type of reactive power of the load represented by said electric appliance (1), said power factor being the ratio between the active power and the apparent power absorbed by said electric appliance (1), and said cos-phi being the phase

displacement of said line sinusoidal voltage with respect to said sinusoidal electric current.

23. Monitoring device (9) according to claim 22, wherein said momentary electric current absorbed by said electric appliance (1) and said line voltage applied to said electric appliance (1) are expressed through RMS values.

24. Monitoring device (9) according to any one of the previous claims, wherein said at least one piece of information corresponds to said value of said at least one physical quantity or with said value of said at least one electric quantity.

25. Monitoring device (9) according to any one of claims 1 to 24, wherein said at least one piece of information is a functional piece of information related to the operating state of said electric appliance (1).

26. Monitoring device (9) according to any one of claims 1 to 24, wherein said at least one piece of information is a statistical piece of information related to the use of said electric appliance (1).

27. Monitoring device (9) according to any one of claims 1 to 24, wherein said at least one piece of information is a diagnostic piece of information related to the efficiency condition of said electric appliance (1) or of a particular component of said electric appliance (1).

28. Monitoring device (9) according to any one of claims 21 to 27, wherein said electric appliance (1) is a laundry washing machine or washing/drying machine adapted to perform at least one wash treatment on textile items, said at least one physical quantity being preferably one of the following: weight of the textile items being present in the basket (22) of said washing machine or washing/drying machine, flow rate of the water supplied to said washing machine or washing/drying machine, temperature of the washing liquid contained in the tub (2) of said washing machine or washing/drying machine, and conductivity of the washing liquid drained by said washing machine or washing/drying machine, said washing liquid comprising water and at least one washing agent.

29. Monitoring device (9) according to claim 2 and claim 28, wherein at said remote location a plurality of information sent by said monitoring device (9) is collected for the purpose of identifying at least one parameter related to the use of said washing machine or washing/drying machine, said at least one parameter being preferably one of the following: number of wash treatments performed by said washing machine or washing/drying machine within a predefined time interval, quantity and typology of the textile items loaded on average by the user for each wash treatment, quantity and typology of the washing agents

loaded on average by the user for each wash treatment, average quantity of water used by said washing machine or washing/drying machine for each wash treatment, and average electric energy absorbed by said washing machine or washing/drying machine for each wash treatment.